In the claims

1. (Currently amended) A multi-stratum multi-timescale control system for self-governance of a network, said control system comprising:

routing means operating at a first stratum on a first timescale for providing ~~routing~~ route-selection functions;

resource allocation means operating at a second stratum on a second timescale for providing resource allocation functions; and

provisioning means operating at a third stratum on a third timescale for providing provisioning functions;

each successive timescale being coarser than its preceding timescale; ~~and~~

~~wherein a lower stratum network function provides network information to a higher stratum network function, said higher stratum network function making control decisions based on said network information~~

wherein said routing means:

selects routes for connection requests received from traffic sources;

determines routing indices; and

sends resource allocation requirements determined according to said routing indices to said resource allocation means;

wherein said resource allocation means:

allocates resources according to said resource allocation requirements;

determines resource allocation indices; and

sends resource augmentation requirements, based on said resource allocation indices, to said provisioning means;

and

wherein said provisioning means produces resource installation requirements based on said resource augmentation requirements

2. (Cancelled)

3. (Currently amended) The [[A]] system according to claim [[2]] 1 wherein each of said routes is selected from a predefined route set and each of said routing indices ~~index metric~~ is created based on automated measurements of a plurality of routes in [[a]] said predefined route set.

4. (Currently amended) The [[A]] system according to claim 3 wherein said automated measurements comprise state information measurements along an entire route.

5. (Currently amended) The [[A]] system according to claim [[2]] 1 wherein each of said routing indices ~~index metric~~ is based on a traffic-weighted mean route depth determined as:

$$\rho = \Sigma (D_j \times C_j) / \Sigma C_j \quad \text{for } 0 \leq j < N ;$$

where

ρ denotes said each of said routing indices;

D_j denotes a route depth, for a connection of capacity requirement C_j bits per second, determined as a rank of a first route, in a ranked route set, having a vacancy at least equal to C_j; and

N is a number of connection requests contending for said route set during a measurement period.

6. (Currently amended) The [[A]] system according to claim [[2]] 1 wherein each of said routing indices ~~index metric~~ is based on a constituent traffic indicator, said constituent traffic indicator being a proportion of traffic transferred over a preferred route in a respective route set.

7. (Currently amended) The [[A]] system according to claim [[2]] 1 wherein ~~said routing index metric is based on traffic classification with respect to defined thresholds~~ said routing means defines a routing-index threshold and determines said resource allocation requirements based only on routing indices which exceed said routing-index threshold.

8. (Currently amended) The [[A]] system according to claim [[2]] 1 further comprising means for measuring efficacy of route selection in said network based on said routing indices ~~index metric~~.

9. (Cancelled)

10. (Currently amended) The [[A]] system according to claim [[9]] 1 wherein said resource allocation ~~index metric is~~ indices are created based on automated measurements of resource allocation data.

11. (Currently amended) The [[A]] system according to claim [[9]] 1 further comprising means for measuring efficacy of resource allocation in said network based on said resource allocation indices ~~index metric~~.

12. (Currently amended) The [[A]] system according to claim 1 wherein said resource allocation functions comprise functions which configure the network so as to satisfy resource allocation requirements.

13. (Cancelled)

14. (Cancelled)

15. (Currently amended) The [[A]] system according to claim ~~13~~ 6 wherein said constituent traffic indicator ~~metric~~ is created based on automated measurements of accepted primary traffic, accepted secondary traffic, and rejected traffic, where said primary traffic is traffic transferred over a route of a predefined high rank, said secondary traffic is traffic transferred over a route of a predefined low rank, and said rejected traffic is not transferred through said network.

16. (Currently amended) The [[A]] system according to claim ~~13~~ 15 wherein said constituent traffic indicator ~~metric~~ determines ~~network provisioning~~ resource allocation requirements.

17. (Currently amended) The [[A]] system according to claim 1 wherein said routing means includes ~~an~~ a plurality of edge controllers each edge controller associated with an edge node of said network, said resource allocation means includes a plurality of core controllers, each core controller associated with a core node of said network, and said provisioning means includes a network controller.

18. (Currently amended) The [[A]] system according to claim 1 wherein said resource allocation functions ~~means~~ and said provisioning functions ~~means~~ are integrated.

19. (Currently amended) The [[A]] system according to claim 1 wherein said second stratum and said third stratum are integrated.

20. (Currently amended) The [[A]] system according to claim 1 wherein said second timescale and said third timescale are ~~the~~ a same timescale.

21. (Currently amended) A multi-timescale control method for self-governance of a network wherein each of successive timescales in said network is coarser than its preceding timescale, said method comprising the steps of:

a) performing, on a first timescale, a routing function, said routing function including ~~determining resource allocation requirements based on a routing index;~~[:]

selecting preferred routes for connection requests received from traffic sources;

determining routing indices based on said preferred routes; and

determining resource allocation requirements based on said routing indices;

b) performing, on a second timescale, a resource allocation function, said resource allocation function including ~~determining resource augmentation requirements based on a resource allocation index;~~[:]

allocating resources based on said resource allocation requirements;

determining resource allocation indices; and

determining resource augmentation requirements based on compiling said resource allocation indices;

and

c) performing ~~calculating~~, on a third timescale, network provisioning functions ~~requirements~~ based on said resource augmentation requirements for producing resource installation requirements~~, whereby said network provisioning requirements are provided for a resource augmentation decision~~.

22. (Currently amended) The [[A]] method according to claim 21 wherein ~~step a)~~ said selecting comprises:

measuring at least one parameter relating to a plurality of routes in a route set~~; and compiling a routing index metric based on said measured parameters~~.

23. (Currently amended) The [[A]] method according to claim 22 wherein said step of measuring at least one parameter relating to a plurality of routes in a route set comprises collecting state information measurements along an entire route.

24. (Currently amended) The [[A]] method according to claim 23 wherein said measurements are collected for a connection that is denied along said route.

25. (Currently amended) The [[A]] method according to claim 22 further comprising the step of measuring efficacy of ~~route selection in said network~~ said selecting on the basis of said routing indices ~~index metric~~.

26. (Currently amended) The [[A]] method according to claim 21 wherein ~~step b)~~ said allocating comprises ~~configuring network~~ rearrangement of allocated transport resources to satisfy said resource allocation requirements.

27. (Currently amended) The [[A]] method according to claim 21 wherein ~~step b) comprises compiling a resource allocation index metric created~~ said compiling of said resource allocation indices is based on automated measurements of resource allocation data.

28. (Currently amended) The [[A]] method according to claim 27 further comprising the step of measuring efficacy of resource allocation in said network on the basis of said resource allocation indices ~~index metric~~.

29. (Currently amended) The [[A]] method according to claim 21 wherein ~~step c) comprises~~ said second timescale and said third timescale are unified and said network provisioning functions comprise:

measuring ~~the~~ classification and amount of traffic accepted and rejected on various links of the network ~~system~~; and

compiling a constituent traffic metric on the basis of said measuring ~~traffic measurements~~.

30. (Currently amended) The [[A]] method according to claim ~~21~~ 29 further comprising the step of providing network provisioning requirements based on said constituent traffic metric.

31. (Withdrawn) An edge node controller having program code stored in a computer readable medium, the program code being operable when executed to:

receive a connection request;

identify a sink node from said connection request;

select a route set based on identification of said source node and said sink node;

choose a candidate route from said route set in order of rank;

signal a connection on said candidate route;
receive measurements taken along said candidate route;
determine a routing index value for said candidate route;
update a routing index metric with said route index value; and
transmit resource allocation requirements to a core node controller.

32. (Withdrawn) An edge node controller according to claim 31 wherein said measurements include state information measurements along the entirety of one of an accepted and a rejected candidate route.

33. (Withdrawn) An edge node controller according to claim 31 wherein said routing index metric is based on route depth, said route depth being a rank of said one of an accepted and a rejected candidate route.

34. (Withdrawn) An edge node controller according to claim 31 wherein said routing index metric is based on constituent traffic.

35. (Withdrawn) An edge node controller according to claim 31 wherein said routing index metric is based on traffic classification with respect to defined thresholds.

36. (Withdrawn) An edge node controller according to claim 31 further comprising program code operable when executed to measure efficacy of route selection based on said routing index metric.

37. (Withdrawn) A core node controller having program code stored on a computer readable medium, the program code operable when executed to:

receive a resource allocation requirement from an edge node controller;
store a plurality of resource allocation requirements;
configure at least one core node in response to said resource allocation

requirements;

track failed resource configuration attempts;

determine resource augmentation requirements based on said failed resource configuration attempts; and

transmit said resource augmentation requirements to a provisioning means for calculating network provisioning requirements based on said resource augmentation requirements.

38. (Withdrawn) A core node controller according to claim 37 further comprising program code operable when executed to determine a resource allocation index based on said resource augmentation requirements.

39. (Withdrawn) A core node controller according to claim 38 wherein said resource allocation index is created based on automated measurements of resource allocation data.

40. (Withdrawn) A core node controller according to claim 38 further comprising program code operable when executed to:

measure efficacy of resource allocation based on at least some information in said resource allocation index.

41. (Withdrawn) A core node controller according to claim 37 further comprising program code operable when executed to:

determine the severity of said resource allocation requirements; and

sort said plurality of resource allocation requirements according to severity.

42. (Withdrawn) A core node controller according to claim 37 wherein said provisioning means is provided on said core node controller.